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Sports and Exercise Cardiology

ANATOMICAL BASIS OF EXERCISE INDUCED PROMINENT ANTERIOR QRS FORCE

Poster Contributions
Poster Sessions, Expo North
Monday, March 11, 2013, 9:45 a.m.-10:30 a.m.

Session Title: Sports and Exercise Cardiology: Unique Observations during Cardiac Testing
Abstract Category: 29. Sports and Exercise Cardiology: Diagnostic Testing: ECG Exercise or "The Older Athlete"
Presentation Number: 1304-257

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Background: Prominent anterior QRS force (PAF), defined as tall R waves in the right or middle precordial leads, can be explained by left septal fascicular block or by incomplete right bundle branch block. Some rare cases of intermittent PAF during acute ischemia involving the septum have been published. We have reported a single center series of 7 patients in which intermittent PAF was induced during a treadmill test. At coronariography a severe stenosis involving the left anterior descending coronary artery (LAD) was found in each patient. We hypothesized that an extensive ischemia involving the middle and apical septum, caused by a lesion in a LAD with a long recurrent segment could be the mechanism of exercise induced PAF.

Methods: We performed a case-control study in which two age and sex-adjusted controls were selected for each patient of our series. The controls were consecutive patients with a positive treadmill test and LAD severe disease. Then, we compared the length of the LAD recurrent segment, and the Recurrent Segment Index (RSI = LAD recurrent segment length / LAD artery total length, expressed in %) between cases and controls.

Results: Patients with induced PAF during the treadmill test, had a longer LAD recurrent segment (25.5 ± 8.1 mm Vs. 13.3 ± 9.4 mm, p = 0.013) and a higher RSI (18.3 ± 5.3 % Vs. 9.2 ± 5.9 %, p = 0.004) than controls.

Conclusions: Exercise induced PAF is associated with severe LAD disease and with a long recurrent LAD segment, and it is probably caused by left septal fascicular block.